Flow Oriented Modeling

- Structured analysis and design
- Top-down methodology
- Graphical technique depicting information flows and the transformations that are applied as data moves from input to output

Modeling Tools

- Context Diagram
- Data flow diagram
- Entity-relationship diagram
- Control-flow diagram
- State-transition diagram
- Data dictionary
- Process specification (PSPEC)
- Control Specification (CSPEC)

Steps

- Develop Context Diagram -- diagram 0
- Decompose the Process into high level processes
- In Parallel
  - Develop Data Flow Diagram(s)
  - Develop Entity-Relationship Diagram
  - Develop State-Transition Diagram
- Define data stores
  - normalization
- Develop Data Dictionary
- Finalize DFD, ER, STD
- Develop Process Specifications
  - PDL, Decision Tables or Trees
- Perform Transformational Analysis
  - Develop Structure Charts

Data Flow Diagrams

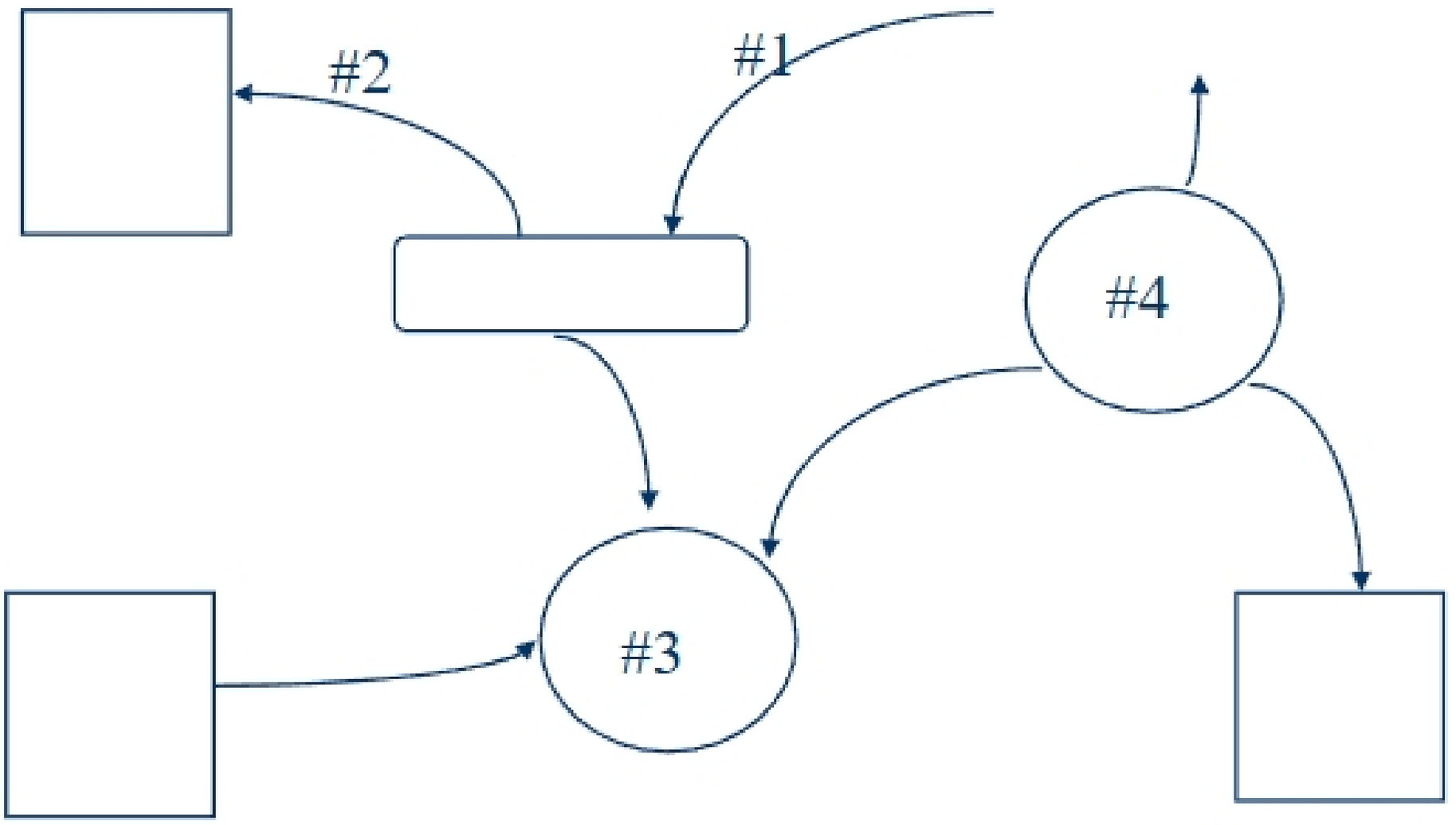
- Hierarchically structured
- each level in the hierarchy shows increased detail
  - each level continues the same inputs/outputs as previous level

- data dictionary is used to document the data flowing
  - leaves diagrams less cluttered
- do not show control: iteration or selection
- each level of the diagram must fit on one page

Usage Rules

- a data flow is either output or input but not both
- if 2 data flows exist between two nodes (either process bubbles, external entities, or data stores) the data flowing must be different
- must be a transformation (process bubble) between nodes
- each process must have both input and output

Finding Errors at a glance



Reading a Data Flow Diagram

- Start in upper left hand corner with lowest numbered process and move to right
- follow the output then the input to next in numbered sequence
- continue until entire diagram has been traveled